

Efficiency improvement in microwave power amplifiers by using complex gain predistortion technique

ABSTRACT

Power Amplifiers (PAs) are important parts of the transmitters. They amplify the signals that are going to be transmitted. With increasing the input power of the PA, it creates the nonlinearity at the output. The nonlinearity causes out of band distortion and in band distortion. To overcome these effects the power amplifier should be backed off but it will reduce the efficiency of the PA. To increase the efficiency, the Complex Gain Memory Predistortion (CGP) is added to the system. Experimental results with the Mini Circuit power amplifier show an improvement of 7% in Power Added Efficiency (PAE) when the CGP method is applied.

Keyword: Predistortion; Efficiency; Power amplifier; CGP